

WATER AND RESOURCE PROTECTION WELLS

FULL LICENSE

WRITTEN EXAM STUDY PACKAGE

Thank you for your interest in becoming a licensed Washington State well operator. This online Study Package includes the following:

A Guide to Washington's Well Operator Licensing Program: If you have not read this brochure, please read it now! This brochure will describe the different ways to become a licensed operator from entering our training program to getting a Washington license when you are already licensed out of state.

Continuing Education for Well Operators: Provides questions and answers regarding our continuing education program and how to have a class approved. You may also see our listing of classes at (whatever the online address is).

“Consolidated Rock Table”: This chart separates the categories of rock type based on igneous, metamorphic and sedimentary.

Passing the Written Exam:

1. You will need to know how to fill out a well log for both construction and decommissioning of a well.
2. You will need to know how to plot the location of a well using 1/4, 1/4, section, township and range.
3. You will need to know different rock types based on igneous, metamorphic and sedimentary. The “**Consolidated Rock Table**” separates these rock types (link or?).
4. All other questions are based on the regulations and on the job experience/knowledge. The **Well Construction Act (Regulations)** (see link on well home page) should be downloaded and studied. You will need to be familiar with these regulations in order to pass the written exam.
5. CFR 40: Although parts of these regulations may be included in the written exam, CFR 40 (see link on well home page) is also considered reference material you may need as you work on projects.
6. Most of the questions are true/false or multiple choice.

Please note: This online package was assembled for your convenience using several different publications. Ignore references to “visit our website.” When you find the term “sidebar,” it is referring to the gray sidebar on that particular publication—not the web page

We hope you find this information useful. Thank you again for your interest.



A GUIDE TO WASHINGTON'S WELL OPERATOR LICENSE PROGRAM

For Well Operators

Water Resources Program

For more information:

Online visit:
www.ecy.wa.gov/programs/wr/wrhome.html – click on wells
All publications referred to are available online.

To leave a recorded message or request publications, call 1-800-468-0261

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Introduction

There are two categories of wells drilled in Washington State (water well and resource protection well). This guide will provide the applicant with step by step procedures used to qualify for, obtain and renew a water well and/or resource protection well operator's license. Under the water well and resource protection well categories, you may qualify for either a trainee license or a full license.

Since 1998 we require continuing education as part of the qualifying experience needed to apply for a well operator's license. For more information on Continuing Education, request or view online Publication #WR-98-153 "Continuing Education for Well Operators".

Training program

Entering the Trainee Program

Phase One

1. Complete 600 hours of field experience in water or resource protection well drilling. This experience must be gained under the direct supervision of a Washington State licensed well operator. The direct supervisor must have been licensed for at least three years. Direct supervision means that while this field experience is gained, the supervisor must be on-site at all times to supervise the unlicensed employee.
2. Obtain 6 units of continuing education (CEUs). Although there is no time limit to obtain your experience and CEUs, these requirements must be met before taking the written exam. When you are ready, simply notify Ecology and fill out an application to take the appropriate tests to obtain your training license.

Phase Two

1. Request a study packet by visiting our web site (see sidebar) or calling 1-800 - 468-0261 (follow the prompts). Submit an Application for Water Well or Resource Protection Well Operator Trainee License. This application must be filled out completely, including the "Statement of Work Experience" and "Statement of Sponsor" box.
2. Provide documentation of your 6 Continuing Education Units.
3. Submit a \$25 fee.

Phase Three

1. You must pass a written examination. The written examination must be scheduled and may be taken in Olympia, Yakima or Spokane.
2. You must pass an on-site field examination. The on-site examination will be scheduled AFTER you pass the written examination. For more information on the on-site examination, request or view online Publication #98-1808-WR "On-Site Testing for Licensed Well Operators." After successfully completing this phase, you will be issued a trainee license.

Trainee License

Your trainee license will be valid for two years. During that time, you **MUST** keep a daily log that is signed off by your supervising, licensed driller. You will need to show 3600 hours of field experience in your daily log and proof of an additional 14 CEUs. During this time you are allowed to work with indirect supervision by a licensed driller. *Indirect supervision means that your supervisor must have been licensed for a minimum of three years; your supervisor must be available by radio, cell phone or some other means of communication; and your supervisor can reach the drill site within one hour.*

A trainee license is not renewable. However, a one time extension may be granted for up to 24 months. You must provide a reason for the extension. There is a \$25 fee for an extension.

Completing the Trainee Program

After you have obtained 3600 hours of documented experience (daily log) and 14 CEUs, you may apply to be fully licensed. Submit your completed application, \$25 filing fee, daily log, and proof of your 14 CEUs. No other examination will be given.

Full Washington Well Operator License

To qualify for a full license in water wells or resource protection wells, you must have a minimum amount of field experience and continuing education units. You can qualify for a full license by meeting **one** of the following requirements:

- Becoming a Licensed Trainee and completing the Trainee Program above; or
- Working as a driller licensed in another state; or
- Working in Washington State as an unlicensed helper and supervised by a licensed operator; or
- Applying for and passing a written exam when your Washington State license has expired.

Trainee License

See "Training Program" section above.

Licensed Out of State

If you held a license in another state for at least 3 years and have obtained 32 CEUs, you may apply for a Washington State Well Operator License. Although there is no time limit to obtain your experience and CEUs, these requirements must be met before taking the written exam. When you are ready, simply notify Ecology.

Phase One

Request a study packet by visiting our web site (see sidebar on front page) or calling 1-800-468-0261 (follow the prompts). Submit a completed application for a Well Operator's License, a \$25 fee, and provide proof of your 32 CEUs.

Phase Two

You must pass a written examination and may be required to pass an on-site examination. The written examination must be scheduled, and may be taken in Olympia, Yakima or Spokane.

If an on-site examination is required, you will be notified after passing the written examination. For more information on this test, request or view online, *Publication # 98-1808-WR "On-Site Testing for Licensed Well Operators."*

New Applicant (never been licensed)

You must complete 5400 hours of drilling experience under the direct supervision of a licensed driller. Your licensed supervisor must be on site at all times during well construction. You will need to obtain 32 CEUs. There is no time limit for completing this step. When you are ready, simply notify Ecology.

Phase One

Request a study packet by visiting our website (see sidebar on front page) or calling 1-800-468-0261 (follow the prompts). Submit a completed application for a Well Operator's License, a \$25 fee and provide proof of your 32 CEUs.

Phase Two

You must pass a written examination. The written examination must be scheduled and may be taken in Olympia, Yakima or Spokane.

Expired Licensed Driller

If your license has lapsed, you may apply for a new license under this category. You must gain 7 CEUs for every year, or portion of a year your license has expired.

Phase One

Request a study packet by visiting our website (see sidebar on front page) or calling 1-800-468-0261 (follow the prompts). Submit a completed application for a Well Operator's License, a \$25 fee, and proof of the necessary CEUs.

Phase Two

You must pass a written examination. The written examination must be scheduled and may be taken in Olympia, Yakima or Spokane.

Qualifying for Both a Water and Resource Protection Well Operator's License

Qualifying experience must be in either water well or resource protection well drilling. For example, if you are applying for a water well license, all experience must be gained in water well drilling. However, if you already hold a water well or resource protection well license, you may qualify to receive the other license if you obtain an additional 600 hours of well drilling experience.

Phase One

Request a study packet by visiting our website (see sidebar on front page) or calling 1-800-468-0261 (follow the prompts). Submit a completed application for a Well Operator's License, a \$25 fee, and proof of your additional 600 hours of experience. *Proof of experience will consist of drilling reports showing you were the driller of record on at least 15 wells, or other documentation approved by the department.*

Phase Two

You must pass a written examination. The written examination may be taken in Olympia, Yakima or Spokane.

License Renewal

Full licenses are issued for two years and must be renewed before they lapse. During those two years, you must obtain 14 CEUs. To renew your license, the department must receive a completed renewal application, appropriate fee (\$20 for one license \$40 for both) and proof of your continuing education.

If you do not renew your license by the renewal date, you may not construct or decommission wells. You must apply for a new license. You may apply under "Expired Licensed Driller" category described above.

If you require this publication in an alternate format, please contact Water Resources Reception at (360) 407-6600 (Voice) or (TTY) at 711 or 1-800-833-6388.

CONSOLIDATED ROCKS

SEDIMENTARY

Rock Name	Composition	Physical Characteristics
Conglomerate	Cemented gravel, sand, and sometimes contains silt.	Color varies. Very uneven composition. Hardness varies widely with the degree of cementation.
Sandstone	Cemented sand. Contains varying amounts of silt, mica, or other materials.	Buff, yellow, brown, and gray in color. Drills fairly well except where it is highly cemented. Deposited in layers of varying thickness. Water bearing characteristics very widely.
Siltstone	Cemented material of silt. size.	Layered, generally gray in color. Forms gritty mud when drilled.
Shale	Compacted and cemented clay.	Thinly layered. Often blue, gray, green, or yellow in color. Drills easily and often the cuttings exhibit thin soft flakes. Poor aquifer.
Limestone	Compacted and cemented limy mud.	Thin to thickly bedded. Generally light to dark gray in color. Rock will fizz when weak hydrochloric (Muriatic) acid is put on it. Very good aquifer when solution channels have formed.

IGNEOUS

Rock Name	Physical Characteristics
Granite	Generally light to dark gray or pinkish in color. Mineral crystals are well developed and are generally even in size. Very hard to drill. Ground water present will only occur in joints and fractures in the rock.
Rhyolite	Gray, white, red, or purplish in color. Often highly fractured. Contains grains of quartz, mica, and sometimes pumice fragments. Often is associated with obsidian flows. Fairly hard and slow drilling with much abrasive effect on drill bits.
Basalt	Usually dark gray to black in color. Generally well jointed, and often includes small green crystals of olivine. Gas bubbles are present near the top and bottom of individual flows and contacts are generally marked by cinder beds, thin deposits of sediments, and reddish discoloration. Where the pore space exceeds the rock material the rock is called scoria.

METAMORPHIC

Rock Name	Physical Characteristics
Gneiss	Granitic appearing rocks. Generally they are darker in color and have a banded appearance. Very hard to drill. Water occurs only in joints and generally in low quantity.
Quartzite	A light colored, extremely hard sandstone consisting almost entirely of quartz grains. This is probably the hardest rock to drill.
Marble	The metamorphic companion of limestone. Generally light gray in color with darker contorted bands.
Slate	Very hard metamorphic shale. Usually only identified by drilling speed and comparison of hardness to shale.



Frequently Asked Questions about On-site Testing for Licensed Well Operators

For Well Operators

Water Resources Program

For more information:

Online visit:
www.ecy.wa.gov/programs/wr/wrhome.html
– click on wells

To leave a recorded message, call
1-800-468-0261.

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Q: What is an on-site test and who is required to take one?

A: An on-site test is a field examination that may be required by some applicants. The test is designed to demonstrate that an applicant has the basic knowledge and skills required to drill wells in Washington. The examination may take place at an actual well drilling site, or at your shop. The on-site test is administered by Ecology.

Not all license applicants are required to take the on-site exam. Only a person applying for either water well or resource protection *training* license *must* complete an on-site examination as part of the licensing process. Ecology may also require an on-site test if an applicant was previously licensed in another state, or if an applicant's original license has been suspended, revoked or expired.

Q: What will be required in the test?

A: An on-site examination will test the applicant's general knowledge and field skills needed to safely complete a well. The applicant will be asked to demonstrate their familiarization with the major components of the drill rig and the construction regulations (Chapter 18.104 RCW and Chapters 173-160 WAC) by operating their drilling equipment.

Q: How will I be notified if I have to take the test?

A: You will be notified at the time Ecology mails your written examination results. It will be your responsibility to contact Ecology. A contact name and number will be sent with your examination results.

You will need to be prompt about scheduling the on-site test. Examinations must be taken within 30 days after passing the written examination. If meeting the 30 day timeframe is not practical, you may contact Ecology to request an extension to the testing schedule. Acceptable reasons for rescheduling may include poor weather conditions, lack of available department staff or health problems. However, if for any reason you don't complete the on-site exam within 90 days after passing the written exam, you may have to reapply and reschedule another on-site exam.

Q: How much does the examination cost?

A: Your Ecology application fee includes the cost of the on-site exam.

Q: How do I find out the results of the test?

A: You will be notified of your test results within 10 days after taking the test. If you fail the on-site exam, you may retest after waiting at least 30 days. You will not be required to retake the written exam if you fail the on-site exam.





Focus on **CONTINUING EDUCATION** **FOR LICENSED WELL OPERATORS**

For Well Operators

Water Resources Program

For more information:

Online visit:
www.ecy.wa.gov/programs/wr/wrhome.html
— click on wells

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Washington well drillers are required to gain continuing education when applying for a new well operator license or renewing an existing one.

Well operators need approved Continuing Education Units (CEUs) when applying for, or renewing, a well operators license in Washington State. Participation in continuing education allows drillers to stay informed of industry changes and technological advances. Combining field experience with classroom work enhances a driller's knowledge, skills and abilities.

A CEU is defined as one unit, approved by Ecology, for time spent in classroom, workshop or seminar training. An applicant or licensed driller must gain a minimum number of CEUs to obtain or renew a well operator's license.

How CEUs are approved

The Department of Ecology (Ecology) assigns units to training courses based on a recommendation from the Technical Advisory Group. Ecology maintains a list of approved courses which is available online or can be requested by calling the 1-800 line (see sidebar). The number of units given to a course depends on several factors. These include the difficulty of the subject, the qualifications of the instructor, and how closely the course agenda relates to the drilling profession.

Applicants and licensed well drillers should know how many CEUs are required, and plan to take as many classes as necessary to obtain or renew a well operator license.

A driller cannot “carry over” credits from one license renewal period to another.

Locating a training course to fit a driller's needs and schedule

Training courses should relate to occupational health and safety; business and office skills; interpersonal skills; technical aspects of the drilling industry; or other subjects as approved by Ecology. A driller can look for training from members of professional associations, government agencies, private businesses, or individuals. Correspondence courses may be approved on a case-by-case basis.

Ecology can provide a list of training courses that have already received CEU approval, but a driller is not limited to taking the courses that are on this list. Look for training opportunities in trade magazines, training flyers or brochures, advertisements in newspapers or mail, and courses offered at universities.



Requesting approval of a training course

Pre-approval of courses prior to the course date is recommended. This will ensure an accurate count of units assigned. A driller can take the course first and then ask for CEU approval, but there is no guarantee that the course will be approved or how many CEUs will be assigned.

There is a form for drillers to use when asking Ecology to evaluate a course they wish to attend. A driller is asked to provide information on the course content, instructors, and course length.

An instructor may also ask for Ecology's approval prior to the course. It would be useful to publicize that information when advertising the course. There is also a form for a provider to use when making this request. Forms can be requested by calling the 1-800 number listed on page 1.

Maintaining your training records

It is the responsibility of the licensed operator to keep track of continuing education classes taken. Proof of attendance may include copies of first aid/cpr cards, OSHA hazmat cards, certificates, or agendas with sign off by instructors. Licensed drillers must provide these proof documents at the time of application for a license or renewal of a license.

Ecology has also developed a tracking database for continuing education for licensed drillers only. CEUs may be added as classes are taken by submitting approved forms of proof of attendance. If proof of continuing education is sent at the time classes are taken and Ecology has this proof on file, no further documentation will be needed when a license is renewed.

Summary of important points

1. Confirm the number of CEUs needed, and look for courses that enhance drilling knowledge and professional skills.
2. Obtain prior approval of course work whenever possible.
3. Maintain records of approved training courses. Drillers will need to show documentation of course work when applying for a drilling license, or applying for renewal of a drilling license. Examples of documentation include certificates of completion, transcripts, attendance rosters, and diplomas.



Focus on Well Tagging Requirements

For Well Operators & Homeowners

Water Resources Program

For more information:

Online visit:
www.ecy.wa.gov/programs/wr/wrhome.html
– click on wells

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Background information

The Department of Ecology's well identification program is designed to identify both newly constructed and existing wells. Licensed drillers in Washington State are required to tag all new or reconstructed wells. It is also the homeowner's responsibility to place a well identification tag on every well they own.

Before the well tagging program went into effect, it was difficult for the public to collect or maintain records for their wells, because there was no way of connecting existing records to a particular well. Often, this information is needed when a property is bought or sold. Property owners also may need to collect and maintain data on their wells for water quality protection and water use. Many agencies and organizations also collect, store, and maintain data from wells. This information includes geologic data, static water levels, bacterial analysis, and contaminant tracking.

The well identification program creates a standard (shared) system to uniquely identify wells so that property owners and various agencies can readily share well data. The program also allows homeowners to maintain records for their wells in Ecology's regional offices. In addition, well tags help provide field identification when Ecology staff are trying to locate an individual well.

General instructions relating to well tagging

Well identification tags are made of rigid aluminum, each containing a six-character identification number, much like a license plate. In most cases, the tag is affixed by strapping it to a well casing (six inches or larger) using a radiator clamp or stainless steel strap. The well identification tag should be placed in a readily visible, reasonably permanent location. Whenever possible, it should not be subject to removal or damage during service to the well or pump. If the well has no exposed casing, or it is difficult to access, attach the tag to the most permanent feature of the well, such as a nearby post, the well house, or the concrete pad at the wellhead.



This is an example of a well tag banded to the casing with a stainless steel strap.

Documenting well identification numbers

Ecology's *Water Well Report* and *Resource Protection Well Report* forms have a space for the well identification number. If older forms are used, please write the well identification number in the upper right hand corner. These forms are available at Ecology's regional offices (see sidebar on page one) and are typically filled out by the well driller. The driller submits the appropriate form to Ecology's regional office well drilling coordinator in the area where the well is located. Drillers may also present the well owner with a form letter that explains the well identification program, along with their copy of the well report.

Homeowners tagging their own wells are required to locate the *Water Well Report* or *Resource Protection Well Report* form for their well(s). If no Water Well Report exists for your well(s), contact the Ecology Headquarters office (online or 1-800 number--see sidebar on page one) to find out what steps you can take in getting a report made on your well(s). The homeowner will then affix the tag they request from Ecology and fill out a Well Tagging Form. The Well Tagging Form is available at Ecology's headquarters office. The Form provides Ecology with information about the well description and location.

When decommissioning, or closing down an old well, a well driller is required to remove the well identification tag and attach it to the *Decommissioning Well Report* before sending the form to Ecology.

Important things to remember

- Never compromise the integrity of the well seal when attaching the identification tag.
- Write the well identification number on all pertinent forms, using the space provided, if there is one. For example, homeowners should reference the well identification number on their water quality lab reports.
- Make sure to write the full well identification number on all forms.

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